REMARKS

Reconsideration and further examination are respectfully requested.

Double Patenting

Claims 1-4, 12-15 and 23-26 were rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims of co-pending application 10/661,903. Applicants acknowledge that a terminal disclaimer may be filed to overcome this rejection. However, because the claims of both applications are currently pending and subject to amendment, Applicants will delay determination as to whether a filing of the terminal disclaimer is a proper course of action until an allowable set of claims has been identified.

Rejections under 35 U.S.C. §102

Claims 1, 2 and 4-15 were rejected under 35 U.S.C. §102(e) as being anticipated by Liu (U.S. Patent 2002/0154635) which incorporates the reference of Caronni et al. (U.S. Patent 6,970,941).

Liu:

Liu describes a method of enabling communications between a first private network and a second private network. As described in the Abstract of Liu: "...When communicating a packet from the first private network to the second private network, a computer receives a packet from a source node in the first private network. The computer then determines whether the packet is destined for the second private network. Thereafter, if the packet is destined for the second private network, the computer forwards the packet to a destination node in the second private

network. When communicating a packet from the second private network to the first private

network, a computer receives a packet from a source node in the second private network..."

Liu therefore describes a method and apparatus for communicating *between* private

networks.

Caronni:

Caronni describes establishing a 'Supernet' which is a private network that uses

components from a public-network infrastructure. At col. 4, lines 36-60 Caronni describes:

"... A Supernet allows an organization to utilize a public-network infrastructure for its
enterprise network so that the organization no longer has to maintain a private network
infrastructure; instead, the organization may have the infrastructure maintained for them by one
or more service providers or other organizations that specialize in such connectivity matters. As
such, the burden of maintaining an enterprise network is greatly reduced. ...
Supernets also provide heterogeneous addressing functionality. The Supernet uses a
separate layer that isolates address names of nodes from addressing schemes and delivery
schemes. The Supernet contains a modification to the IP packet format that can be used to
separate network behavior from addressing. As a result of the modification, any delivery scheme
may be assigned to any address, or group of addresses...."

Caronni describes the address translation scheme in more detail at column 6, lines 6-25:

"... the system provides address translation in a transparent manner. Since the
Supernet is a private network constructed from the infrastructure of another network, the
Supernet has its own internal addressing scheme, separate from the addressing scheme of
the underlying public network. Thus, when a packet from a Supernet node is sent to
another Supernet node, it travels through the public network. To do so, the Supernet
performs address translation from the internal addressing scheme to the public addressing
scheme and vice versa. By separating the addressing schemes, the Supernet creates a
flexible delivery scheme that is easily changeable by network software or a system
administrator. To reduce the complexity of Supernet nodes, system-level components of
the Supernet perform this translation on behalf of the individual nodes so that it is
transparent to the nodes. Another benefit of the Supernets' addressing is that it uses an IP-
based internal addressing scheme so that preexisting programs require little modification
to run within a Supernet..."

The Supernet of Caronni is thus merely a virtual network layered on top of the Internet IP network. For example, as described in the Abstract of Caronni 'The virtual network uses a separate layer to create a modification to the IP packet format that is used to separate network behavior from addressing..."

Figure 4 of Caronni illustrates an embodiment of the Supernet, which includes multiple nodes 316, 318, 320 and 322 which communicate with each other via shared channels. As described at column 5, lines 7-11 of Caronni "... When communicating among themselves, the nodes 316, 381, 320 and 322 serve as end points for the communications..."

At column 12, lines 10-20, Caronni recites:

"... When encrypting the packet, the virtual source node address 642, the virtual destination node address 644, and the data may be encrypted (addressing section 660), but the source and destination real addresses 614, 616 (delivery scheme section 670) are not, so that the real addresses can be used by the public network infrastructure to send packets to the destination..."

Applicant's Argument:

It is well known that "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987)..." (M.P.E.P. 2131) Applicants respectfully submit that neither Liu nor Caronni, alone

or in combination teach or suggest every element of the independent claims of the present invention.

As described above, Liu describes a system and method of interfacing two different private networks. Thus, Caronni describes encrypting the virtual source and destination addresses, and appending a Supernet header and Outer IP header to communications to implement a Supernet.

In contrast, the claimed invention, as amended, now clearly recites a system such as that described on pages 19 and 20 of Applicant's specification, which is directed towards an embodiment of the invention wherein a packet transformation process is 'shared' with a portion being performed at a client edge device and a portion being performed at a provider edge device. As described at page 19, lines 10-12 of Applicant's specification, such an embodiment may be desirable in a networked environment where the owner of the PE wishes to gain some revenue for providing some services to the client.

In particular, as shown in Figures 9A -10B, a trusted ingress point, such as a client edge device, performs IPsec processing on a packet prior to forwarding it to the PE. As shown in Figure 10B, the PE selectively replaces the destination address provided by the client edge device with a VPN group ID, thereby reducing the amount of information that needs to be saved at provider edge devices in the backbone by associating individual destination addresses with a single group ID when it is determined that the source of the packet is an IPsec gateway address.

The advantage of such a configuration reduces the number of point to point connections in the network, and thus reduces the amount of routing information that must be stored, while preserving data as it is transferred across the internet, as described at page 10 of Applicant's specification, which recites:

'With such an arrangement, the amount of data that needs to be stored at each of the trusted ingress and egress points is limited to the number of private groups in the VPN, rather than the number of connection paths...The present invention modifies the existing concepts of where the security boundaries need to be established in order to facilitate network scalability..."

No such advantage is realized by Caronni or Liu, either alone or in combination.

Applicant has amended the claims to more clearly recite the different functions that are performed by the provider and client devices. No such structures are shown or suggested by Liu or Caronni, alone or in combination.

Claims 1, 2 and 4-15

For example, independent claim 1, as amended, now recites "..A method of securing packet data transferred between a first and second member of a private network coupled to client edge devices over a backbone comprising a plurality of provider devices including provider edge devices...comprising the steps of ...encapsulating a private address of a packet ...*transforming, at a client edge device*, the tunneled packet by first applying a group security association associated with the private network to the tunneled packet to provide a secure tunneled packet and then updating a field in the secure tunneled packet in accordance with the routing protocol of the backbone to provide a client transformed packet ... forwarding the client transformed packet to a provider edge device; and ... *replacing, at the provider edge device, the a destination field of the packet with a group identifier associated with the private network for routing the packet across the backbone...*"

Claim 1 is therefore patentably distinct over the combination of references which fail to describe the claimed client edge and provider edge operations, and it is requested that the rejection of claim 1 be withdrawn. Dependent claims 6-8 add further patentable limitations to

claim 1 but are allowable for at least the same reasons as claim 1. Claim 15 includes limitations similar to those of claim 1 and is therefore allowable for at least the reason that the combination of references fail to describe or suggest the shared transform structure of claim 15.

The remaining claims are also patentably distinct over Liu in view of Caronni for at least the reasons that they include limitations similar to those which distinguish claim 1 from the references. For example, independent claim 9 is patentably distinct over Caronni in view of Liu for at least the reason that the combination of references fails to disclose "...modifying at least one field of the packet to replace a destination address of the packet with a group identifier associated with the private network responsive to a determination that the gateway address of the packet indicates that the packet is a member of the private network..." as claimed.

Independent claim 11 is patentably distinct over Caronni in view of Liu, which neither describes nor suggests the limitations of claim 11 which include "...a client edge device including a tunneling mechanism for encapsulating packets that are to be transferred to the backbone in a public address including a gateway address and a destination address to provide a secured packet; and transform logic operable to apply a security association to each packet transmitted by the client edge device to the backbone... a provider edge device coupled to the client edge device, the provider edge device comprising a virtual route forwarding table for storing group identifiers associated with destination addresses and means, responsive to the gateway address of the public address, for selectively updating the destination field of the packet with a group identifier for routing the packet across the backbone. Therefore it is requested that the rejection of claim 11 be withdrawn.

Independent claim 13 is patentably distinct over Caronni in view of Liu, which neither describes nor suggests the limitations of claim 13 which includes "... means for updating a

destination field of the packet to replace a destination identifier with a group identifier prior to the routing of the packet if it is determined that the source address of the packet corresponds to a gateway address indicating that the packet is forwarded between members of the scalable private network..." Therefore it is requested that the rejection of claim 11 be withdrawn. Claim 14 serves to further patentable limitations to claim 13 yet is allowable for at least the reason that it depends up on an allowable claim; it is therefore requested that the rejection of claim 14 be withdrawn.

Rejections under 35 U.S.C. §103(a)

Claim 3:

Claim 3 was rejected under 35 U.S.C. §103(a) as being unpatentable over Liu in view of Alkhatib et al. (U.S. Patent 2003/0233454). Applicants note that claim 3 has been cancelled, but will address the teachings of Alkhatib.

Alkhatib:

Alkhatib describes, in the abstract:

"...A system is disclosed for establishing a public identity for an entity on a private network. In one embodiment, a first entity can initiate a request to create a binding of a public address to a private address for itself. The existence of this public address for the first entity can be made known so that other entities can use the public address to communicate with the first entity. The present invention allows entities outside of a private network to initiate communication with an entity inside a private network..."

The Examiner states, at page 11 of the office action:

"...It would have been obvious to a person of ordinary skill in the art .... to combine the teaching of Alkhatib within the sytem of Liu because (a) Liu teaches a mechanism to extend private networks into a public infrastructure ... and (b) Alkhatib teaches providing a method to create a binding between public addresses when communicating over a private network..."

Applicant's Argument

It is well known that to "establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)." (M.P.E.P. 2143).

No motivation for the modification of references is shown or suggested by the Examiner

The mere fact that references <u>can</u> be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990) A statement that modifications of the prior art to meet the claimed invention would have been "'<u>well within the ordinary skill of the art</u> at the time the claimed invention was made'" because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references. *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993).

Although the Examiner has stated that the references teach the various limitations, the Examiner has provided no reason why one would be motivated to combine these teachings. For at least this reason the rejection under 35 U.S.C. §103 is improper and should be withdrawn.

The Proposed Modification renders the prior art unsatisfactory for its intended purpose

In combining Caronni/Liu with Alkhatib, the Examiner is ignoring the desire of Caronni to develop a Supernet, which is layered over the virtual addresses to separate network behavior from addressing. For at least the reason that the combination would frustrate the desired goals of Caronni, it is requested that the rejection be withdrawn.

Combination neither describes nor suggests the limitations of the claims

However, assuming that one would be motivated to combine the teachings of Alkhatib with Caronni/Liu, the combination would still neither describe or suggest the limitations of the claims. As discussed above, Caronni/Liu fails to describe the particular structure of the claims in which address transforms are performed partially by a client edge device and partially by a provider edge device. Alkhatib does nothing to overcome the inadequacies of the Caronni/Liu references.

Conclusion:

     Applicants have made a diligent effort to place the claims in condition for allowance. However, should there remain unresolved issues that require adverse action, it is respectfully requested that the Examiner telephone Applicants' Attorney at the number listed below so that such issues may be resolved as expeditiously as possible.

     For these reasons, and in view of the above amendments, this application is now considered to be in condition for allowance and such action is earnestly solicited.

                        Respectfully Submitted,

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Docket No. 120-161
Dd: 6/19/2007